

## **LISTING OF CLAIMS**

### **1 – 24. (canceled)**

**25. (previously presented)** A system for storing and retrieving tuples comprising: a collection of a number of instances corresponding to a value of a first attribute; a cardinality element corresponding to the number of instances; wherein the cardinality element is updated each time the number of instances changes and wherein at least one instance indicates at least one other instance corresponding to a value of a second attribute and the second attribute is different from the first attribute.

**26. (previously presented)** A system for storing and retrieving tuples comprising: a collection of a number of instances corresponding to a value of a first attribute; a cardinality element corresponding to the number of instances; wherein the value can be derived from the cardinality element and wherein at least one instance indicates at least one other instance corresponding to a value of a second attribute and the second attribute is different from the first attribute.

**27. (previously presented)** A system for storing a plurality of tuples, each tuple comprising at least a first attribute having a first attribute value and a second attribute having a second attribute value, the system comprising:

for at least two tuples having identical first attribute values and identical second attribute values, a single instance element that identifies the first attribute value and the second attribute value, and a cardinality element comprising information regarding the number of tuples having the identical first and second attribute values.

**28. (previously presented)** The system of claim 27 wherein the instance element comprises the cardinality element.

**29. (previously presented)** A system for storing a plurality of tuples, each tuple comprising at least a first attribute having a first attribute value and a second attribute having a second attribute value, the system comprising:

- a. a value store storing the values of the first and second attributes of the plurality tuples;
- b. an instance store identifying instances of the values in the value store associated with each tuple;
- c. a connectivity store storing information regarding relationships among instances; and

d. a cardinality store storing information representing frequencies of occurrence of instances of equal value, wherein a particular value in the value store associated with a particular instance in the instance store is derived using the cardinality store.

**30. (previously presented)** The system of claim 29 wherein the instance store and the connectivity store are not distinct.